

Claims

What is claimed is:

1. A method comprising:
 - 5 a) receiving from a mobile terminal channel quality indicator indicia bearing on a degree to which a channel response varies across sub-carriers over an orthogonal frequency division multiplexing frequency band; and
 - 10 b) controlling transmission of information to the mobile terminal based on the channel quality indicator indicia.
2. The method of claim 1 wherein the channel quality indicator indicia further bears on a carrier-to-interference ratio associated with the mobile terminal.
- 15 3. The method of claim 2 wherein the channel quality indicator indicia is a value determined at the mobile terminal, the value being a function of the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band and the carrier-to-interference ratio.
- 20 4. The method of claim 2 wherein the channel quality indicator indicia includes first information representing the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band and second information pertaining to the carrier-to-interference ratio, the method further comprising calculating a channel quality indicator value based on the first and second information such that transmission of information to the mobile terminal is a function of the channel quality indicator value.
- 25 5. The method of claim 1 wherein controlling transmission of information further comprises selecting a coding and modulation scheme for transmission of information to the mobile terminal and transmitting the
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information to the mobile terminal using the coding and modulation scheme.

- 5 6. The method of claim 5 wherein controlling transmission of information further comprises scheduling the transmission of information to the mobile terminal based on the channel quality indicator indicia.
- 10 7. The method of claim 1 wherein controlling transmission of information further comprises scheduling the transmission of information to the mobile terminal based on the channel quality indicator indicia.
8. The method of claim 1 wherein the channel response is a measure of channel gains for a plurality of the sub-carriers.
- 15 9. The method of claim 8 wherein the channel quality indicator indicia bears on a standard deviation of the channel gains for the plurality of sub-carriers.
- 20 10. The method of claim 9 wherein the channel quality indicator indicia bears on a standard deviation of a logarithm of the channel gains for the plurality of sub-carriers.
- 25 11. The method of claim 1 wherein the degree to which the channel response varies across sub-carriers over the orthogonal frequency division multiplexing frequency band is determined for a limited range of the sub-carriers within the orthogonal frequency division multiplexing band.
- 30 12. The method of claim 11 wherein the limited range of sub-carriers is a range of sub-carriers only used for the transmission of information.
13. A method comprising:
 - a) monitoring channel conditions associated with a transmission received from a base station;

- 5 b) determining a channel quality indicator indicia based on the channel conditions, the channel quality indicator indicia bearing on a degree to which a channel response varies across sub-carriers over an orthogonal frequency division multiplexing frequency band; and
- c) transmitting the channel quality indicator indicia to the base station for controlling transmission of information from the base station.
- 10 14. The method of claim 13 wherein determining the channel quality indicator indicia further comprises determining a carrier-to-interference ratio associated with transmissions from the base station.
- 15 15. The method of claim 14 wherein the channel quality indicator indicia is a value, which is a function of the degree to which the channel response varies across sub-carriers over an orthogonal frequency division multiplexing frequency band and the carrier-to-interference ratio.
- 20 16. The method of claim 14 wherein the channel quality indicator indicia includes first information representing the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band and second information pertaining to the carrier to interference ratio, such that the base station calculates
- 25 a channel quality indicator value based on the first and second information and the transmission of information from the base station is a function of the channel quality indicator value.
- 30 17. The method of claim 13 wherein the channel quality indicator indicia dictates a coding and modulation scheme for the transmission of information from the base station.

18. The method of claim 17 wherein the channel quality indicator indicia is further used by the base station to schedule the transmission of information from the base station.
- 5 19. The method of claim 13 wherein the channel quality indicator indicia is used by the base station to schedule the transmission of information from the base station.
- 10 20. The method of claim 13 wherein the channel response is a measure of channel gains for a plurality of the sub-carriers.
- 15 21. The method of claim 20 wherein the channel quality indicator indicia bears on a standard deviation of the channel gains for the plurality of sub-carriers.
- 20 22. The method of claim 21 wherein the channel quality indicator indicia bears on a standard deviation of a logarithm of the channel gains for the plurality of sub-carriers.
- 25 23. The method of claim 13 wherein the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band is determined for a limited range of the sub-carriers within the orthogonal frequency division multiplexing band.
- 30 24. The method of claim 23 wherein the limited range of sub-carriers is a range of sub-carriers only used for the transmission of information.
25. A system comprising:
- a) receive circuitry adapted to receive from a mobile terminal channel quality indicator indicia bearing on a degree to which a channel response varies across sub-carriers over an orthogonal frequency division multiplexing frequency band; and

- b) control circuitry associated with the receive circuitry and adapted to control transmission of information to the mobile terminal based on the channel quality indicator indicia.

- 5 26. The system of claim 25 wherein the channel quality indicator indicia further bears on a carrier-to-interference ratio associated with the mobile terminal.
- 10 27. The system of claim 26 wherein the channel quality indicator indicia is a value determined at the mobile terminal, the value being a function of the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band and the carrier to interference ratio.
- 15 28. The system of claim 26 wherein the channel quality indicator indicia includes first information representing the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band and second information pertaining to the carrier-to-interference ratio, the system further comprising
- 20 calculating a channel quality indicator value based on the first and second information such that transmission of information to the mobile terminal is a function of the channel quality indicator value.
- 25 29. The system of claim 25 wherein to control transmission of information the control system is further adapted to select a coding and modulation scheme for transmission of information to the mobile terminal and further comprising transmission circuitry adapted to transmit the information to the mobile terminal using the coding and modulation scheme.
- 30 30. The system of claim 29 wherein to control transmission of information the control system is further adapted to schedule the transmission of information to the mobile terminal based on the channel quality indicator indicia.

31. The system of claim 25 wherein to control transmission of information the control system is further adapted to schedule the transmission of information to the mobile terminal based on the channel quality indicator indicia.
32. The system of claim 25 wherein the channel response is a measure of channel gains for a plurality of the sub-carriers.
33. The system of claim 32 wherein the channel quality indicator indicia bears on a standard deviation of the channel gains for the plurality of sub-carriers.
34. The system of claim 33 wherein the channel quality indicator indicia bears on a standard deviation of a logarithm of the channel gains for the plurality of sub-carriers.
35. The system of claim 25 wherein the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band is determined for a limited range of sub-carriers within the orthogonal frequency division multiplexing band.
36. The system of claim 35 wherein the limited range of sub-carriers is a range of sub-carriers only used for the transmission of information.
37. A system comprising:
- a) receive circuitry adapted to monitor channel conditions associated with a transmission received from a base station;
 - b) a control system associated with the receive circuitry and adapted to determine a channel quality indicator indicia based on the channel conditions, the channel quality indicator indicia bearing on a degree to which a channel response varies across sub-carriers

over an orthogonal frequency division multiplexing frequency band; and

- c) transmission circuitry associated with the control system and adapted to transmit the channel quality indicator indicia to the base station for controlling transmission of information from the base station.

38. The system of claim 37 wherein to determine the channel quality indicator indicia the control system is further adapted to determine a carrier-to-interference ratio associated with transmissions from the base station.
39. The system of claim 38 wherein the channel quality indicator indicia is a value, which is a function of the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band and the carrier-to-interference ratio.
40. The system of claim 38 wherein the channel quality indicator indicia includes first information representing the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band and second information pertaining to the carrier-to-interference ratio, such that the base station calculates a channel quality indicator value based on the first and second information and the transmission of information from the base station is a function of the channel quality indicator value.
41. The system of claim 37 wherein the channel quality indicator indicia dictates a coding and modulation scheme for the transmission of information from the base station.
42. The system of claim 41 wherein the channel quality indicator indicia is further used by the base station to schedule the transmission of information from the base station.

43. The system of claim 37 wherein the channel quality indicator indicia is used by the base station to schedule the transmission of information from the base station.
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44. The system of claim 37 wherein the channel response is a measure of channel gains for a plurality of the sub-carriers.
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45. The system of claim 44 wherein the channel quality indicator indicia bears on a standard deviation of the channel gains for the plurality of sub-carriers.
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46. The system of claim 45 wherein the channel quality indicator indicia bears on a standard deviation of a logarithm of the channel gains for the plurality of sub-carriers.
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47. The system of claim 37 wherein the degree to which the channel response varies across the sub-carriers over the orthogonal frequency division multiplexing frequency band is determined for a limited range of sub-carriers within the orthogonal frequency division multiplexing band.
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48. The system of claim 47 wherein the limited range of sub-carriers is a range of sub-carriers only used for the transmission of information.